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APHYS 2025

XXI INTERNATIONAL SCIENTIFIC CONFERENCE
ELECTRONICS AND APPLIED PHYSICS

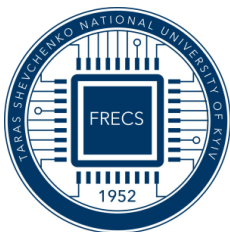
21th -24th October 2025
Kyiv | Ukraine



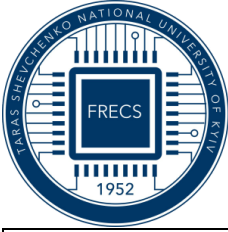
XXI INTERNATIONAL SCIENTIFIC CONFERENCE ELECTRONICS AND APPLIED PHYSICS (APHYS 2025)

Schedule of the conference

October 23, 2025 (12-30 EEST)	Opening Ceremony & Plenary Session (Chairman: Andrii Netreba) https://knu-ua.zoom.us/j/82164219164?pwd=SlBudG13KzQ4MTQzb1F1Vk9JUE4zZz09 Meeting ID: 821 6421 9164 Passcode: 241883 12:30 Opening Ceremony 12:40 TO THE 100th ANNIVERSARY OF M.G. NAKHODKIN'S BIRTH <i>I.O. Anisimov</i> 13:30-14:00 Coffee break
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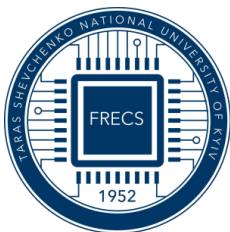
October 23, 2025 (14-00 EEST)	(SP) – Surface Physics, Nano- and Microelectronics (Chairman: <i>Andrii Horyachko</i>) https://meet.google.com/ijd-hquz-pfo 1. OPTIMIZATION OF CHROMATIC SPR SENSOR FOR GASEOUS MEDIUM BASED ON REFLECTED BEAM COLOR REGISTRATION: MODELING AND EXPERIMENT <i>A.I. Biletskiy, O.L. Kukla, O.N. Fedchenko</i> 2. DENSITY FUNCTIONAL THEORY IN THE NANOSCALE ERA CAPABILITIES, CHALLENGES, AND ADVANCES IN ELECTRONIC STRUCTURE MODELING <i>O. Holubovskyi, A. Ivanisik, A. Goriachko</i> 3. NEAR-SURFACE SUPERCONDUCTIVITY IN ELECTROCHEMICALLY REDUCED INDIUM–TIN OXIDE FILMS <i>D. Menesenko, O. Feia, A. Shapovalov</i> 4. DISORDER-ENHANCED SUPERCONDUCTIVITY IN AMORPHOUS MOLYBDENUM SILICIDES <i>D. Mindich, I. Martynenko, O. Zraichenko, O. Leha, V. Lyakhno, A. Shapovalov</i>
October 23, 2025 (14-00 EEST)	(PS) – Physics of Semiconductors and Dielectrics, Semiconductor's Devices (Chairman: <i>Anna Karlash</i>) https://meet.google.com/uqd-btvr-mjg 1. ION-STIMULATED MODIFICATION OF THE PHASE AND DEFECT STRUCTURE OF VO_x FILMS <i>K.V. Kovalov</i> 2. MICROWAVE PROPERTIES OF ACTIVATED CARBON FIBER–POLYURETHANE COMPOSITE PLANAR STRUCTURES <i>V.D. Malovychko, V.E. Diyuk, V.H. Demchenko, M.O. Popov, H.L. Chumak, V.A. Moiseienko, L.M. Grishchenko</i>



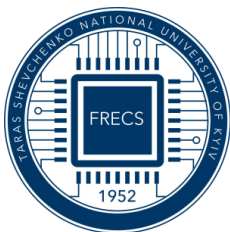
	3. PREPARATION OF POLYVINYL CHLORIDE/CARBON NANOTUBES THIN-FILM COMPOSITES AND THEIR MICROWAVE ABSORPTION PROPERTIES <i>D.O. Zhytnyk, I.P. Matushko, Yu.V. Noskov, V.A. Moiseienko, L.M. Grishchenko</i> 4. POROUS SILICON BRAGG MIRRORS AS OPTICAL SENSORS <i>O.Yu. Ostapenko, I.I. Ivanov</i> 5. MICROWAVE PROPERTIES OF ZnFe_2O_4/POLYVINYL CHLORIDE COMPOSITES <i>I.V. Fesych, O.O. Kharchenko, I.P. Matushko, Yu.V. Noskov, V.A. Moiseienko, L.M. Grishchenko</i> 6. MICROWAVE PROPERTIES OF COMPOSITES FILMS BASED ON THERMOPLASTIC POLYURETHANE AND BIRCH ACTIVATED CARBON <i>V.D. Malovychko, O.M. Gonchar, M.O. Popov, H.L. Chumak, V.A. Moiseienko, I.P. Matushko, L.M. Grishchenko</i> 7. APODIZED POROUS-SILICON RUGATE FILTER FOR COLORIMETRIC/REFRACTOMETRIC SENSING <i>A.S. Nytsenko, I.I. Ivanov</i>
October 23, 2025 (14-00 EEST)	(PP) – Plasma Physics (day 1) (Chairman: Anatoliy Veklych) https://us04web.zoom.us/j/75826596566?pwd=TDLa8BgJoThGbTBzZdGOuJtQ3RcIZI.1 Meeting ID: 758 2659 6566 Passcode: 9C05EX 1. FORMATION OF HIGH-ENERGY SELF-INJECTED BUNCHES IN A LONGITUDINALLY INHOMOGENEOUS PLASMA CHANNEL AT LASER-PLASMA ACCELERATION <i>D.S. Bondar, W. Leemans, V.I. Maslov, I.N. Onishchenko</i> 2. PLASMA LENS FOR THE FOCUSING OF POSITRON BUNCHES <i>D.S. Bondar, V.I. Maslov, I.N. Onishchenko</i>



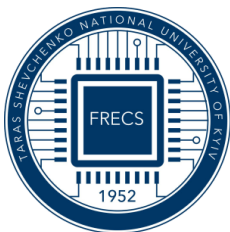
	3. THE DAMAGING AND EROSION OF Li-CPS STRUCTURE UNDER TRANSIENT PLASMA LOADS <i>V.A. Makhlai, I.E. Garkusha, S.S. Herashchenko, Y.E. Volkova, Yu.V. Petrov, D. V. Yelisyeyev, P.B. Shevchuk, Yu.V. Seromolot, T.W. Morgan</i> 4. PLASMA SOURCE FOR ION-PLASMA MODIFICATION OF STRUCTURAL MATERIALS <i>V.O. Khomych, S.M. Gubarev</i> 5. ACCELERATED FORMATION OF A PLASMA DENSITY CAVITY DRIVEN BY SELF-FOCUSING OF AN INCIDENT ELECTROMAGNETIC BEAM <i>B.R. Mykhailenko, I.O. Anisimov</i> 6. INVESTIGATION OF THE DEPENDENCE OF THE PLASMA DENSITY IN A LOW-PRESSURE HOLLOW-CATHODE ARC DISCHARGE ON GAS PRESSURE <i>A.V. Ryabtsev, V.O. Khomych</i> 7. CHARGE NEUTRALIZATION AND CURRENT NEUTRALIZATION OF AN ELECTRON BUNCH IN A HOMOGENEOUS WARM PLASMA <i>A.V. Hortopan, I.O. Anisimov</i> 8. MODELING OF CHARGING OF DUST PARTICLES IN ARGON PLASMA IN PULSE REGIME <i>V. Vinnichenko</i>
October 23, 2025 (14-00 EEST)	(REC) – Radio Engineering and Communications (day 1) (Chairman: <i>Mykhailo Kononov</i>) https://knu-ua.zoom.us/j/83613167501?pwd=oFcYKMCGexwPVAiHQcN7O8zRfxpRl4.1 1. IRRADIATION OF A TRANSIENT ELECTROMAGNETIC WAVE NEAR A DIELECTRIC MEDIUM <i>D.I. Havrylenko, O.M. Dumin, S.L. Berdnyk</i> 2. STATE OF IONOSPHERIC RADIO PROPAGATION CHANNELS DURING GEOSPACE STORMS <i>L.F. Chernogor, V.O. Bessarabova</i> 3. RADIOPHYSICAL EFFECTS OF MULTI-STEP IONOSPHERIC STORM



	<i>L.F. Chernogor, M.Yu. Tkachenko</i> 4. TOOLKIT FOR MEDICAL TELECONSULTATION SYSTEM BASED ON WEB INTERFACE <i>M. Kononov, V. Kononov, G. Zhyrov</i> 5. THE MULTI-STEP GEOMAGNETIC STORM OF NOVEMBER 4–7, 2023, AS A TOPIC OF APPLIED PHYSICS <i>L.F. Chernogor, M.Yu. Holub, V.T. Rozumenko</i> 6. SYSTEMATIC SPECTRAL ANALYSIS OF SOLAR WIND PARAMETERS <i>L.F. Chernogor, D.R. Novytska</i> 7. MULTIFACTOR ANALYSIS OF GEOSPACE STORMS AFFECTING ATMOSPHERIC–IONOSPHERIC–MAGNETOSPHERIC RADIO PROPAGATION CHANNELS <i>L.F. Chernogor, D.R. Kulyk</i> 8. ANALYSIS OF DRIFT AND VARIABILITY OF THE OUTPUT SIGNAL OF CONTACT CONDUCTIVITY SENSORS DURING REPEATED MEASUREMENTS OF URBAN WATER SAMPLES <i>V. Kabernyk, S. Olszewski</i>
October 23, 2025 (14-00 EEST)	(MAP) – Mathematical Problems of Applied Physics (Chairman: Andrii Netreba) https://meet.google.com/dxv-pgxu-wxz 1. MULTI-FRACTAL ANALYSYS USING THE WTMM AND THE MFDFA METHODS IN APPLIED PHYSICS <i>L.F. Chernogor, O.V. Lazorenko, A.A. Onishchenko</i> 2. USE OF COMPOSITIONS OF FUZZY RELATIONS AND TRANSITIVE CONCLUSIONS FOR ANALYSIS OF EXPERT EVALUATIONS OF INVESTMENT PROJECTS <i>D.T. Nidzelsky, M.V. Maksyuta, V.V. Obukhovsky</i> 3. CALCULATION OF INTERACTION POTENTIALS OF POSITIVELY CHARGED PARTICLES WITH MAIN AXES IN CRYSTALS WITH FLUORITE STRUCTURE



	<i>M.V. Maksyuta, V.I. Vysotskii, D.M. Maksyuta, S.V. Efimenko, A.O. Stakhova</i>
October 24, 2025 (12-30 EEST)	(MP) – Medical Physics (Chairman: Serhii Radchenko) https://meet.google.com/nap-trbe-pcy 1. ABSORPTION AND SCATTERING OF COPPER VAPOR LASER RADIATION IN BIOLOGICAL TISSUES <i>O. Shokun, A. Ivanisik</i> 2. An Approach to Incorporating Physical Distortions into Neural Networks for Medical Image Reconstruction <i>D.G. Sliusarenko, A.V. Netreba</i> 3. OPTIMIZATION OF CONVOLUTIONAL NEURAL NETWORKS FOR MEDICAL IMAGE ANALYSIS <i>V. Kyrychenko</i> 4. MULTITAPER K-SPACE DENOISING OF MAGNETIC RESONANCE IMAGES <i>S.P. Mamotenko, A.V. Netreba</i> 5. MULTIMODAL HETEROGENEOUS DATA INTEGRATION FOR EXPLAINABLE MEDICAL SIGNAL RECOGNITION <i>V.I. Sapaiev, A.V. Netreba</i> 6. COMPARISON ATP THEORETICAL AND EXPERIMENTAL IR SPECTRA <i>Yu.G. Terentieva, K.O. Maiko, I.S. Voiteshenko</i> 7. GENERATION OF STIMULATED RAMAN SCATTERING IN SEQUENTIALLY ARRANGED SELF-FOCUSING MEDIA <i>O. Mokhonko, A. Ivanisik</i>



**October 24,
2025
(12-30 EEST)**

**(LPO) – Laser Physics and Optoelectronics
(PTA) – Polarimetry: Theory and Applications
(Chairman: Serhii Savenkov)**

<https://us02web.zoom.us/j/85435571420?pwd=G328sU1brdp2FDyfeZYGmjhzNPBXZF.1>

1. PULSED INFRARED IRRADIATION EFFECTS ON THE MICROWAVE RESPONSE OF A MOLYBDENUM–RHENIUM ALLOY MICROSTRIP SUPERCONDUCTING RESONATOR
O.A. Kalenyuk, S.I. Futimsky, I.O. Martynenko, A.P. Shapovalov
2. REFRACTORY METAL VAPOR LASERS: EXPERIMENT VS. THEORY
O. Komarov, A.M. Dobrovolskiy
3. ANALYSIS OF POLARIMETRIC DEFECTOSCOPY APPLICABILITY FOR SILICON MEDIA IN GENERAL-PURPOSE MICROPROCESSORS
A. Fesenko, S.N. Savenkov
4. PHOTOINDUCED EXCITATION OF AUTOWAVE AND CHAOTIC SCATTERING IN PHOTOREFRACTIVE MEDIA
V. Lemeshko
5. INFLUENCE OF GEOMETRY AND FIELD ON THE REMANENT MAGNETIZATION AND ANISOTROPY OF MAGNETIC NANOPARTICLES IN BIPOLAR STRUCTURES
T.I. Biriukov, O.M. Ivanyuta



**October 24,
2025
(12-30 EEST)**

**(CT) – Computer Technologies
(Chairman: Sergii Zagorodniuk)**

<https://knu-ua.zoom.us/j/89194221436?pwd=RRK5IYTQAwk4LaibCvV23MMfoepaql.1>

Meeting ID: 891 9422 1436
Passcode: 078706

1. EXPERIMENTAL INVESTIGATION OF CODETRANS T5 AND T5 MODELS FOR COMMIT MESSAGE GENERATION IN VERSION CONTROL SYSTEMS
B. Semonov, S. Pogorilyy
2. BENCHMARKING YOLO NANO ON EMBEDDED PLATFORMS: RASPBERRY PI ZERO W2, PI 4, AND PI 5
Y. Hloba
3. CLASS-AWARE POLYP SEGMENTATION IN COLON IMAGES WITH SEGFORMER MODELS
V. Matus, A. Konovalov
4. COMPARATIVE ANALYSIS OF EDGE-COMPUTE COMPANION COMPUTERS FOR ON-BOARD VISION IN AUTONOMOUS UAVS
O. Shevchenko
5. QUANTUM-RESISTANT SD-WAN: IMPLEMENTING POST-QUANTUM CRYPTOGRAPHIC SOLUTIONS IN ENTERPRISE NETWORKS
V.A. Marianovskyi, E.A. Korinnyi
6. CYBERSECURITY IN NETWORKS
D. Mankovskyi



**October 24,
2025**
(12-30 EEST)

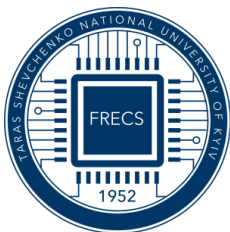
(PP) – Plasma Physics (day 2)
(Chairman: Anatoliy Veklych)

<https://us04web.zoom.us/j/75826596566?pwd=TDLa8BgJoThGbTBzZdGOuJtQ3RcIZI.1>

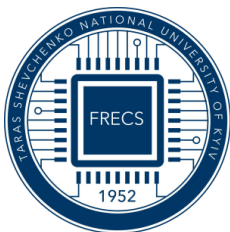
Meeting ID: 758 2659 6566

Passcode: 9C05EX

1. SPACE-TIME DEPENDENCES OF FLOATING IN A A PLASMA OF HOLLOW CATHODE DISCHARGE INITIATED BY THE INJECTION OF A PLASMA BUNCH
V.Yu. Bazhenov, V.V. Tsiolko, V.M. Piun
2. INFLUENCE OF GAS SUPPLY METHOD ON THE DISCHARGE GLOW IN A HALL TYPE DEVICE WITH AN ANODE LAYER
V.Yu. Bazhenov, A.M. Dobrovolskii, V.V. Tsiolko, V.M. Piun
3. NUMERICAL MODELING OF METAL PARTICLE AND ATMOSPHERIC PRESSURE CURRENT-CARRYING ARGON PLASMA INTERACTION
A.I. Momot, D.V. Antoniv, I.V. Krivtsun
4. THE PHASE CHARACTERISTICS OF IONS IN THE TWO STAGE PLASMA SOURCE WITH HALL CURRENT
A.M. Dobrovolsky, O.A. Goncharov, O.V. Fedorovskaya, V.I. Maslov, I.N. Onishchenko
5. DATA PROCESSING OF NON-UNIFORM PLASMA WITH METAL VAPOURS ADMIXTURES
V. Apanasenko, A. Murmantsev, A. Veklich
6. EFFECT OF GAS PRESSURE ON ANODE SHEATH STRUCTURE IN HALL THRUSTER
E.V. Romashchenko
7. THE INFLUENCE OF COLLISIONS IN LOW-PRESSURE PLASMA ON THE ENERGY OF IONS IN THE NEAR-ELECTRODE LAYER
O.Yu. Kravchenko, A.A. Derkach
8. PROPERTIES OF A SECONDARY DISCHARGE SUPPORTED BY A ROTATING GLIDING DISCHARGE



	V.Ya. Chernyak, V.V. Iukhymenko, K.V. Iukhymenko, S.S. Nedovesov, D.D. Tretiakov, O.M. Tsymbaliuk, O.O. Zavazhenko 9. EFFECTS OF NON-EQUILIBRIUM PLASMA PROCESSING ON SOLUTIONS OF BIOORGANIC ACIDS V.Ya. Chernyak, V.V. Iukhymenko, K.V. Iukhymenko, S.S. Nedovesov, D.D. Tretiakov, O.M. Tsymbaliuk, O.V. Dobrydniev, S.V. Shulha
October 24, 2025 (13-00 EEST)	(REC) – Radio Engineering and Communications (day 2) (Chairman: Mykhailo Kononov) https://knu-ua.zoom.us/j/83613167501?pwd=oFcYKMdGexwPVAiHQcN7O8zRfxpRl4.1 1. GYRATOR ON OPERATIONAL AMPLIFIER IN BIPOLAR LC-OSCILLATOR R.V. Bohdanov, I.I. Bekh 2. RADIOPHYSICAL LIMITATIONS OF CELLULAR RADIO COMMUNICATIONS GENERATIONS L.F. Chernogor, M.B. Shevelev, J. Wang, Ye. Zhdanko, Yu. Zheng 3. DISTURBANCES OF THE TOTAL ELECTRON CONTENT IN THE IONOSPHERIC RADIO PROPAGATION CHANNEL L.F. Chernogor, Yu.B. Mylovanov, M.B. Shevelev 4. ACOUSTIC-GRAVITY WAVES FROM THE EXPLOSION OF A POWERFUL VOLCANO L.F. Chernogor, O.I. Liashchuk, O. Rudycheva, M.B. Shevelev, N.M. Tilichenko 5. PROTOTYPE SOFTWARE SOLUTION FOR AUTOMATING QUALITATIVE AND QUANTITATIVE ANALYSIS OF THIN LAYER CHROMATOGRAPHY IMAGES O.A. Kushnir, S.V. Olszewski 6. AUTOMATED SYSTEM FOR RECEIVING METEOROLOGICAL DATA FROM NOAA WEATHER SATELLITES



	<i>H.O. Moskalenko, I.O. Derkach, V.A. Moiseienko</i> 7. THE IMPACT OF SOLAR FLARES ON THE IONOSPHERIC RADIO CHANNEL PARAMETERS <i>L.F. Chernogor, R.M. Kovalov</i> 8. THE IMPACT OF POWERFUL ATMOSPHERIC VORTICES ON THE ATMOSPHERIC-IONOSPHERIC RADIO PROPAGATION CHANNEL <i>L.F. Chernogor, Yiyang Luo</i> 9. THE IMPACT OF GLOBAL SEISMIC ACTIVITY ON ATMOSPHERIC-IONOSPHERIC RADIO PROPAGATION CHANNELS <i>L.F. Chernogor, Yiyang Luo, I.G. Zakharov</i>
October 24, 2025 (16-00 EEST)	Closing Ceremony (Chairman: Andrii Netreba) https://knu-ua.zoom.us/j/82164219164?pwd=SlBudG13KzQ4MTQzb1F1Vk9JUE4zZz09 Meeting ID: 821 6421 9164 Passcode: 241883